

In The Claims

What is claimed is:

1. A dispenser for dispensing extrudable material from a cartridge, said dispenser comprising:

a housing including first and second recesses, the first recess configured to receive and position the cartridge so that a longitudinal axis of the cartridge is aligned with a longitudinal axis of the first and second recesses;

a plunger movable along the longitudinal axis of the first and second recesses;

a driver element, mounted in the second recess, that selectively engages and moves the plunger in a forward direction along the longitudinal axis of the first and second recesses, and selectively disengages from the plunger to allow the plunger to move in a rearward direction along the longitudinal axis of the first and second recesses;
and

a clutch element, mounted in the second recess, that selectively engages the plunger to restrain movement of the plunger in the rearward direction;

such that, when the clutch element engages the plunger, movement of the plunger in the rearward direction is limited to a predetermined distance.

2. The dispenser of claim 1, wherein the clutch element disengages from the plunger when the plunger is moved in the forward direction.

3. The dispenser of claim 1, further comprising:

an actuator coupled to the driver element for engaging the driver element to move the plunger in the forward direction.

4. The dispenser of claim 1, wherein the driver element includes:

a bore for receiving the plunger; and

an engagement surface for coupling to the actuator;

such that, when the actuator engages the engagement surface, the driver element is repositioned to cause the bore and plunger to frictionally interfere.

5. The dispenser of claim 1, wherein the clutch element includes:

a bore for receiving the plunger; and

an engagement surface coupled to a clutch spring;

wherein the clutch spring biases the engagement surface to variably position the clutch element according to a directional movement of the plunger, such that the bore and plunger frictionally interfere when the plunger moves in the rearward direction.

6. The dispenser of claim 4, wherein the housing further includes a third recess for mounting a pivot arm of the actuator, the pivot arm being pivotable around a fulcrum and having an upper cam portion for engaging the engagement surface of the driver element.

7. The dispenser of claim 1, wherein the plunger is insertable into a rearward opening of the cartridge such that movement of the plunger in the forward direction causes the extrudable material to be extruded through a front nozzle of the cartridge.

8. The dispenser of claim 7, wherein the plunger includes a plunger stop located at a forward end of the plunger for engaging a piston in the cartridge to extrude extrudable material through the front nozzle of the cartridge.

9. The dispenser of claim 6, further comprising a return spring attached to the pivot arm, the return spring operating to return the pivot arm to a disengaged position when the actuator is released.

10. The dispenser of claim 4, wherein the driver element further includes a driver spring coupled to and biasing the driver element, such that the driver element is repositioned when the actuator is released so that the plunger is movable through the bore.

11. The dispenser of claim 5, wherein the clutch element includes first and second tabs pivotably confined within first and second cavities in the second recess for variably positioning the clutch element.

12. The dispenser of claim 11, wherein the clutch element further includes a lever portion operable to reposition the clutch element so that the plunger is movable through the bore.

13. The dispenser of claim 1, wherein the plunger includes a handle fastened at a rearward end of the plunger extending outwardly from the second recess.

14. A dispenser for dispensing extrudable material, said dispenser comprising:

- a cartridge for receiving the extrudable material;
- a housing including first recess and second recesses, the first recess configured to receive and position the cartridge so that a longitudinal axis of the cartridge is aligned with a longitudinal axis of the first and second recesses;
- a plunger movable along the longitudinal axis of the first and second recesses;
- a driver element, mounted in the second recess, that selectively engages and moves the plunger in a forward direction along the longitudinal axis of the first and second recesses, and selectively disengages from the plunger to allow the plunger to move in a rearward direction along the longitudinal axis of the first and second recesses;
- and
- a clutch element, mounted in the second recess, that selectively engages the plunger to restrain movement of the plunger in the rearward direction;

such that, when the clutch element engages the plunger, movement of the plunger in the rearward direction is limited to a predetermined distance.

15. The dispenser of claim 14, wherein the cartridge includes a piston for coupling with a forward end of the plunger, the piston being insertable into a rearward opening of the cartridge to seal an inner circumference of the cartridge while being forwardly urged along the longitudinal axis by the plunger.

16. The dispenser of claim 15, wherein the plunger includes a plunger stop at the forward end of the plunger for coupling with the piston.

17. A dispenser for dispensing dental composite materials from a cartridge, said dispenser comprising:

a housing including first recess and second recesses, the first recess configured to receive and position the cartridge so that a longitudinal axis of the cartridge is aligned with a longitudinal axis of the first and second recesses;

a plunger movable along the longitudinal axis of the first and second recesses;

a driver element, mounted in the second recess, that selectively engages and moves the plunger in a forward direction along the longitudinal axis of the first and second recesses, and selectively disengages from the plunger to allow the plunger to move in a rearward direction along the longitudinal axis of the first and second recesses; and

a clutch element, mounted in the second recess, that selectively engages the plunger to restrain movement of the plunger in the rearward direction;

such that, when the clutch element engages the plunger, movement of the plunger in the rearward direction is limited to a predetermined distance.